

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A wireless network of sensor nodes comprising:
multiple first wireless sensor nodes that transmit signals;
multiple independent infrastructure nodes that receive the transmitted signals, wherein the multiple independent infrastructure nodes are spaced from each other and each multiple independent infrastructure node is associated with a different set of wireless sensor nodes, and further wherein at least two infrastructure nodes receive a transmitted signal from a single first wireless sensor node, the single first wireless sensor node associated with one of the at least two infrastructure nodes; and
a module that combines at least two of the signals received at the multiple independent infrastructure nodes to estimate the signal transmitted by the single first wireless sensor node.
2. (Original) The wireless network of claim 1 and further comprising a central controller that receives signals from the independent infrastructure nodes and contains the module that combines the signals.
3. (Original) The wireless network of claim 2 wherein the infrastructure nodes are hardwired to the central controller.
4. (Original) The wireless network of claim 2 wherein the infrastructure node comprises a wireless transceiver for communicating with the central controller.
5. (Currently Amended) The wireless network of claim 1 wherein the first wireless nodes comprise sensors, and wherein the signals they transmit signals that are representative of a sensed parameter.

6. (Original) The wireless network of claim 1 wherein the signals are combined using a diversity technique.
7. (Currently Amended) The wireless network of claim 6 wherein wireless channel coefficients that are associated with the RF links between the first wireless sensor node and the infrastructure nodes are used for combining the signals.
8. (Original) The wireless network of claim 7 wherein the diversity technique comprises maximal ratio combining.
9. (Original) The wireless network of claim 1 wherein one of the infrastructure nodes receives signals from other infrastructure nodes and combines the signals received by the multiple infrastructure nodes.
10. (Currently Amended) An infrastructure node for a wireless network, the infrastructure node comprising:
- a first receiver that receives a transmitted signal from a wireless sensor node;
 - a second receiver that receives signals from other independent infrastructure nodes representative of the transmitted signal from the wireless sensor node that were received by the other independent infrastructure nodes; and
 - a module that combines the signal received from the wireless sensor node and the signals from the other independent infrastructure nodes to estimate the signal transmitted by the wireless sensor node;
- wherein the infrastructure node and the other independent infrastructure nodes are spaced from each other and the infrastructure node and each of the other independent infrastructure structure nodes are associated with a different set of wireless sensor nodes.
11. (Original) The infrastructure node of claim 10 wherein the infrastructure node is hardwired to a central controller.

12. (Original) The infrastructure node of claim 10 and further comprising a wireless transceiver for communicating with a central controller.
13. (Original) The infrastructure node of claim 10 wherein the signals are combined using a diversity technique.
14. (Currently Amended) The infrastructure node of claim 13 wherein wireless channel coefficients that are associated with the RF links between the wireless sensor node and the infrastructure nodes are used for combining the signals.
15. (Original) The infrastructure node of claim 13 wherein the diversity technique is selected from a group consisting of maximal ratio combining, equal gain combining, selection combining and switching combining.
16. (Currently Amended) An infrastructure node for a wireless network of sensor nodes, the infrastructure node comprising:
- means for receiving a transmitted signal from a wireless sensor node;
 - means for receiving the signals from other independent infrastructure nodes representative of the transmitted signal from the wireless sensor node, wherein the infrastructure node and the other independent infrastructure nodes are spaced from each other, and the infrastructure node and each of the other independent infrastructure nodes are associated with a different set of wireless sensor nodes, and further wherein the wireless sensor node is associated with the infrastructure node; and
 - means for combining the signal received from the wireless sensor node and the signals from the other independent infrastructure nodes to estimate the signal transmitted by the wireless sensor node.
17. (Currently Amended) A wireless network of sensor nodes comprising:
- means for transmitting low power wireless signals;

multiple means for receiving the transmitted signals, wherein at least two of such means receive a transmitted signal from a single first wireless sensor node; and

means for combining at least two of the signals received at the multiple means for receiving the transmitted signals for estimating the signal transmitted by the single first wireless node;

wherein the multiple means for receiving the transmitted signals are spaced from each other and each multiple means for receiving the transmitted signals is associated with a different set of wireless sensor nodes.

18. (Currently Amended) A method of processing signals at a infrastructure node for a wireless network, the infrastructure node performing the method comprising:

receiving a transmitted signal from a wireless sensor node;

receiving the signals from other independent infrastructure nodes representative of the transmitted signal from the wireless sensor node; and

combining the signal received from the wireless node and the signals from the other independent infrastructure nodes to estimate the signal transmitted by the wireless sensor node;

wherein the infrastructure node and the other independent infrastructure nodes are spaced from each other, and the infrastructure node and each of the other independent infrastructure nodes are associated with a different set of wireless sensor nodes, and further wherein the wireless sensor node is associated with the infrastructure node.

19. (Currently Amended) A method of processing signals in a network having multiple independent infrastructure nodes and multiple sensor nodes, the method comprising:

transmitting a signal from a first wireless sensor node;

receiving the transmitted signal, wherein at least two infrastructure nodes receive the transmitted signal from the single first wireless sensor node; and

combining the signals received by at least two of the multiple independent infrastructure nodes to estimate the signal transmitted by the single first wireless sensor node;

wherein the multiple independent infrastructure nodes and the at least two infrastructure nodes are spaced from each other, and each of the multiple independent infrastructure nodes and each of the at least two infrastructure nodes is associated with a different wireless node; and wherein the first wireless sensor node is associated with one of the multiple independent infrastructure nodes or one of the at least two infrastructure nodes.

20. (Original) The method of claim 19 wherein combining is performed by a central controller that receives signals from the independent infrastructure nodes.
21. (Original) The method of claim 19 wherein the signals are combined using a diversity technique.
22. (Currently Amended) The method of claim 21 wherein wireless channel coefficients that are associated with the RF links between the first wireless sensor node and the infrastructure nodes are used for combining the signals.
23. (Original) The method of claim 22 wherein the diversity technique comprises maximal ratio combining.